

REMARKS

I. Summary of the Examiner's Action

A. Claim Rejections

In paragraph 2 of the Office Action, the Examiner rejected claims 32 and 33 under 35 U.S.C. § 101 as being directed to non-statutory subject matter.

In paragraph 4 of the Office Action, the Examiner rejected claim 12 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention.

In paragraph 9 of the Office Action, the Examiner rejected claims 1, 9, 13, 27, 30, 31 and 32 under 35 U.S.C. § 102(b) as being anticipated by European Patent Application Number 0491495 to Gitlin (hereinafter the "Gitlin application").

In paragraph 17 of the Office Action, the Examiner rejected claim 12 under 35 U.S.C. § 102(b) as being anticipated by the Microsoft Press Computer Dictionary, Second Edition ("Microsoft").

In paragraph 19 of the Office Action, the Examiner rejected claims 1, 11, 13 and 29 under 35 U.S.C. § 102(b) as being anticipated by United States Patent No. 5,253,250 to Schlafer *et al.*

(hereinafter the “Schlafer patent”).

In paragraph 24 of the Office Action, the Examiner rejected claims 1 and 13 under 35 U.S.C. § 102(b) as being anticipated by European Patent Application Number 0260470 to Maxwell *et al.* (hereinafter the “Maxwell application”).

In paragraph 28 of the Office Action, the Examiner rejected claims 2, 3, 4, 14, 15 and 16 under 35 U.S.C. § 103(a) as being unpatentable over the Gitlin application as applied to claims 1 and 13, and further in view of The Free On-Line Dictionary of Computing (hereinafter “FOLDOC”).

In paragraph 35 of the Office Action, the Examiner rejected claims 5 and 17 under 35 U.S.C. § 103(a) as being unpatentable over the Gitlin and FOLDOC references as applied to claims 4 and 16, and further in view of US Patent Number 6,157,935 to Tran *et al.* (hereinafter the “Tran patent”).

In paragraph 38 of the Office Action, the Examiner rejected claims 6 and 18 under 35 U.S.C. § 103(a) as being unpatentable over the Gitlin, FOLDOC, and Tran references as applied to claims 5 and 17, and further in view of US Patent No. 6,529,935 to Joergensen (hereinafter the “Joergensen patent”).

In paragraph 41 of the Office Action the Examiner rejected claims 7, 19 and 20 under 35 U.S.C. § 103(a) as being unpatentable over Gitlin as applied to claims 1 and 13 above, and further in view of Joergensen.

In paragraph 45 of the office Action, the Examiner rejected claim 8 under 35 U.S.C. § 103(a) as being unpatentable over Gitlin and Joergensen as applied to claim 7, and further in view of UK Patent Application No. GB2314487 to Gfeller *et al.* (hereinafter the “Gfeller application”).

In paragraph 47 of the Office Action, the Examiner rejected claims 10 and 28 under 35 U.S.C. § 103(a) as being unpatentable over Gitlin as applied to claims 1 and 13, and further in view of US Patent No. 5,142,550 to Tymes (hereinafter the “Tymes patent”).

In paragraph 50 of the Office Action, the Examiner rejected claims 21 and 24 under 35 U.S.C. § 103(a) as being unpatentable over Gitlin and Joergensen as applied to claim 20, and further in view of US Patent No. 6,385,210 to Overberg *et al.* (hereinafter the “Overberg patent”).

In paragraph 53 of the Office Action, the Examiner rejected claim 22 under 35 U.S.C. § 103(a) as being unpatentable over Gitlin as applied to claim 13, and further in view of Gfeller.

In paragraph 55 of the Office Action, the Examiner rejected claims 23 and 25 under 35

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U.S.C. § 103(a) as being unpatentable over Gitlin and Gfeller as applied to claim 22 and further in view of US Patent No. 6,256,358 to Whikehart *et al.* (hereinafter the “Whikehart patent”).

In paragraph 58 of the Office Action, the Examiner rejected claim 26 under 35 U.S.C. § 103(a) as being unpatentable over Gitlin as applied to claim 13, and further in view of Joergensen, Overberg, Gfeller and Whikehart.

In paragraph 60 of the Office Action, the Examiner rejected claim 33 under 35 U.S.C. § 103(a) as being unpatentable over Gitlin as applied to claim 32, and further in view of FOLDOC.

II. Applicant's Response

A. Claim Rejections

1. Rejections under 35 U.S.C. § 101

Applicant has cancelled claims 32 and 33, thereby mooting the rejection of the claims on this basis.

2. Rejection under 35 U.S.C. § 112, second paragraph

Applicant has amended claim 12 to depend from claim 1, thereby overcoming the rejection of the claim under 35 U.S.C. § 112, second paragraph.

3. Rejections under 35 U.S.C. § 102(b)

Applicant respectfully submits that the Examiner has not set forth a case of anticipation of independent claims 1 and 13 based on any of the Gitlin, Schlafer and Maxwell references.

Regarding Gitlin, this reference is concerned with problems encountered in optical switching systems, particularly the problem that electronic switches multiplexing data onto very high-speed optical data links require expensive, high-performance circuitry:

“The advent of gigabit-per-second packet networks has focused the attention of optical network system designers on the need to provide selected users with gigabit-per-second network access together with a high-speed multiplexing system which can be used to access an optical channel. One approach frequently suggested is the use of lower speed channels with wavelength division multiplexing. Unfortunately, since this approach requires dividing or “chopping” the high speed traffic into multiple streams for transmission on several channels, relatively complex traffic synchronization and/or reassembly procedures are required at the receiving end. It is noted that statistical time division multiplexing does not suffer from this disadvantage. It does, however, require electronic switching of multiplexed traffic at the peak channel rate. Switching at this high rate is both complex and expensive because this is the rate at which a line card of a switching node must operate. For example, if the transmission rate of the data is 1 Gbps, the line card must detect and process the packets at 1Gbps. Very high speed electronics is expensive and the technology is, as yet, not sufficiently mature. Thus, there is a need to avoid the limitations of high speed electronics.”

Gitlin, Column 1, lines 9 – 33 (emphasis added).

Gitlin addresses the problems encountered with optical high-speed time division multiplexing in such a way that the header (containing destination information) can be interpreted in a practical manner, so that the information can be switched and dispatched. This is achieved by an appreciation that switches performing the multiplexing operation in Gitlin do not need to read the data itself, and therefore Gitlin slows down the switching data in the header, allowing the use of cheaper switches. There is no teaching in Gitlin on how data transmission is handled, as opposed to data multiplexing. In particular, Gitlin does not propose a method of transmission of data messages in accordance with the present invention as claimed in claim 1. Further, Gitlin acknowledges that the problem it purportedly solves is a *switching (multiplexing)* problem, and not a data *transmission* problem:

“In this invention, we solve this problem by separating the switching operation from the transmission operation. Such separation provides the additional advantage of permitting independent changes in the switching of the optical signals or in the transmission facilities.”

Gitlin, Column 3, lines 16 – 21 (emphasis added).

In addition, Gitlin is silent with regard to the step of the present invention as recited in claim 1 of “adjusting at least one of said first transmission rate and said second data transmission rate in dependence on a signal quality determined for transmission on said bus line”. There is simply no

teaching in Gitlin to adjust transmission rates. Instead, as data arrives at an optical switch compliant with Gitlin, an optical coupler “diverts a small portion of the optical signal in the optical link 30 to a low speed receiver 34 and the major portion of the optical signal is passed by the coupler through a delay 36 to a photonic switch 40”. (Column 3, line 55 to column 4, line 1). No adjusting step is carried out in Gitlin – the low rate header is preordained as such.

Nonetheless, the Examiner relies on the abstract as disclosing this aspect of Applicants’s invention:

“Gitlin further discloses allowing a user to manually select a line card having a data transmission rate to provide a desired signal quality and allowing the user to manually replace the line card with a line card having a different signal rate providing a different signal quality.”

Office Action, page 4, paragraph 10, lines 7 - 10. First, as discussed previously, the Gitlin reference is not concerned with data transmission *per se* but rather with data multiplexing. Second, it is not seen where in the abstract the pertinent portion of claim 1 appears (or, for that matter, the subject matter paraphrased by the Examiner in paragraph 10 of the Office Action). If the Examiner disagrees, Applicant respectfully requests that the Examiner particularly point out by line number in the abstract where the subject matter claim 1 relating to the adjustment of data transmission rates in dependence on signal quality.

Thus, the present invention, as defined by claim 1, comprises a method of transmission of data messages, which is not described in Gitlin. Further, the present invention, as defined by claim 1, comprises the step of “adjusting at least one of said first transmission rate and said second data transmission rate in dependence on a signal quality determined for transmission on said bus line.” For these reasons alone, the present invention as defined by claim 1 is clearly distinguished from Gitlin and thus is novel.

Moreover, Gitlin positively teaches away from the present invention, and so cannot lead to a conclusion that the present invention is obvious in view of Gitlin. The differences between the present invention and Gitlin are not just absent from the disclosure in Gitlin, these features are substituted by other features, to enable delivery of entirely different functionality. Thus, the present invention, as defined by claim 1, comprises a method of transmission of data messages; in contrast, Gitlin describes a method of multiplexing data. The skilled person, seeking teachings which would enable the provision of improvements in the field of transmission information, would not be encouraged by the absence of relevant disclosure in Gitlin relating to data transmission. The skilled person would not be favorably inclined to use the teaching of Gitlin to work towards the present invention.

In conclusion, there is no motivation to adjust the first transmission rate in Gitlin, as: firstly, signal quality on a transmission line is no concern of the switching node in Gitlin, which is only

concerned with ensuring that data is received at a sufficiently slow rate to allow reading thereof within the capabilities of the receiving equipment; secondly, there is no indication of a reverse pathway for feeding back a transmission rate adjustment message, even if the skilled person were to appreciate that signal quality should be addressed; and thirdly, the entire disclosure concerns the nature and structure of the switching node, not the transmitting node from which optical data is received.

Therefore, in view of the foregoing, the skilled person would reject Gitlin from consideration in the devising of the present invention as defined in claim 1. It follows that the subject matter of claim 1 therefore is not obvious in view of Gitlin (35 USC §102(b)), and that all claims dependent on claim 1 are not rendered obvious.

Claim 13 is directed to “apparatus for transmitting data messages” and includes the feature of:

“means for adjusting at least one of said first data transmission rate and said second data transmission rate in dependence on a signal quality determined for transmission on said bus line”.

These features correspond with those identified above as clearly distinguishing, in a novel and non-obvious manner, the subject matter of claim 1 from Gitlin. Thus, it is submitted that claim 13 also defines subject matter which is neither anticipated, nor rendered obvious in view of Gitlin and that

all claims dependent on claim 13 are also not so anticipated nor rendered obvious.

With reference to paragraphs 17 and 18, it is respectfully submitted that the Examiner's objection is moot in view of amendment to claim 12.

With reference to paragraphs 19 to 23, it is respectfully submitted that claim 1 is not anticipated by Schlafer. Schlafer is a similar disclosure to that of Gitlin. Schlafer describes a device for switching packets of optical data, and thus does not describe "a method of transmission of data" as claimed in claim 1. Further, the step of "adjusting at least one of said first transmission rate and said second data transmission rate in dependence on a signal quality determined for transmission on said bus line" is absent from the disclosure, and could not be surmised from the disclosure because the disclosure is concerned with processing at the receiver, not the transmitter. The Examiner directs our attention to column 2, lines 13 to 42 as allegedly describing such a step, but it is respectfully submitted that this is not the case. In fact, the referenced passage refers to predeterminately selecting a clock rate for a header, to take advantage of the consequently lower requirement for bandwidth in receiver electronics. The object of this disclosure is thus to allow for cheaper and less sophisticated receiver electronics. There is absolutely no mention, teaching or suggestion of signal quality, in accordance with the present invention, and thus it is submitted that the subject matter of claim 1 is therefore clearly distinguished from, and not rendered obvious by, the disclosure of Schlafer.

Claim 13 is directed to “apparatus for transmitting data messages” and includes the feature of:

“means for adjusting at least one of said first data transmission rate and said second data transmission rate in dependence on a signal quality determined for transmission on said bus line.”

These features correspond with those identified above as clearly distinguishing, in a non-obvious manner, the subject matter of claim 1 from Schlafer. Thus, it is submitted that claim 13 also defines subject matter which is neither anticipated, nor rendered obvious in view of Schlafer and that all claims dependent on claim 13 are also not so anticipated nor rendered obvious.

With reference to paragraphs 24 to 26, it is respectfully submitted that claim 1 is not anticipated by Maxwell. Maxwell describes modem communications over a phone line. The document further teaches migration from low-speed full duplex (two-way half band) communication for interactive applications, to high-speed, half duplex (switched, full band) communications for data applications. The disclosure thus offers two data transmission speeds, with straightforward switching between these two modes of operation. The modes of operation of a modem do not concern Applicant’s invention.

As a result, Maxwell does not disclose any aspects of Applicant’s invention as recited in claim 1. For example, claim 1 recites “wherein each said message includes a frame portion

representing content and priority information of the data message . . .” (emphasis added). It is not seen either in the portions of the Maxwell reference relied upon by the Examiner or in any other portion of the Maxwell application where a “frame portion representing content and priority information” as recited in Applicant’s claim 1 is disclosed.

In addition, the Examiner apparently has confused modem operations such as, for example, handshaking, with packetized data transmission that occurs in a system like Applicant’s. The handshaking described in the Maxwell reference does not constitute a frame portion as recited in Applicant’s claims. Further, the portions of the Maxwell application describing the operation of Maxwell’s apparatus show no appreciation for data message structure:

“In one aspect of the present invention, data transmission automatically changes from lower-speed, full duplex operation to higher-speed, half-duplex operation based upon data transmission demands. The transmission mode transparently changes from a lower-speed, interactive mode to a higher-speed data transmission mode as data transmission demands dictate. In accordance with this aspect of the present invention, during the handshake sequence between calling and answering modems, operation is in the lower-speed, full duplex mode. When a large amount of data is to be sent, as in a file transfer, transition is made to the higher-speed mode.

In accordance with the present invention, a transmit data buffer is monitored. The lower-speed, full-duplex transmission mode is maintained until the buffer contains a predetermined number of characters. Operation then switches to higher-speed transmission. The transmitter is selectively operable in either a lower-speed,

full duplex mode or a higher-speed, half-duplex mode.”

Maxwell, Column 2, line 47 – column 3, line 5. Notably, the change in transmission rate is not tied to the portion of the message – frame or data – which is being transmitted. As a result, Maxwell does not disclose the step of:

“causing at least one of said plurality of stations to transmit a data message on to the bus line such that said frame portion thereof is transmitted at a first data transmission rate, and the data portion thereof is transmitted at a second data transmission rate not less than the first data transmission rate”.

Further, Maxwell fails to disclose:

“adjusting at least one of said first data transmission rate and said second data transmission rate in dependence on a signal quality determined for transmission on said bus line”.

As set forth above, since Maxwell does not appreciate the possibility of treating a header and a data portion as separate entities, with different transmission requirements and constraints, this portion of claim 1 is neither described nor suggested by Maxwell. The skilled person reading Maxwell would not see any relevant disclosure to the present invention as the present invention relates to the handling of headers and data portions, whereas Maxwell merely provides two transmission modes, one fast but error-susceptible, the other slow but robust.

Thus, the teaching of Maxwell would be discarded as irrelevant to the field of the present invention. Even if, despite clear prejudice against, the skilled person were to consult Maxwell, the present invention as defined in claim 1 would not be anticipated nor would it be rendered obvious in view of Maxwell.

Claim 13 is patentable over the Maxwell application both for reasons similar to claim 1 and reasons attributable to its own unique features.

In conclusion, claims 1 and 13 are neither anticipated, nor rendered obvious, by any of Gitlin, Maxwell or Schafler, whether taken either singly or in combination. Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of claims 1 and 13 based on these references. In addition, since claims 9, 11, 27, 29, 30 depend from either of claims 1 or 13, these claims are likewise patentable over any of Gitlin, Maxwell or Schafler. As a result, Applicant likewise requests that the rejection of these claims be withdrawn.

4. Rejections under 35 U.S.C. § 103(a)

With reference to paragraphs 27 to 61 of the Office Action, it is respectfully submitted that these rejections are moot in view of the foregoing remarks concerning claims 1 and 13. Paragraphs 62 and 63 warrant no response.

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B. New Claims

Applicant has added new claims 34 – 39. Applicant respectfully submits that new claims 34 – 39 are patentable for the reasons set forth above with respect to independent claims 1 and 13 and for reasons attributable to their unique features.

C. Claim For Priority

Applicant has requested a certified copy of International Application PCT/GB00/0134 and will forward it to the United States Patent and Trademark Office upon receipt in accordance with 35 U.S.C. § 365(c).

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IV. Conclusion

The Applicant submits that in light of the foregoing amendments and remarks the application is now in condition for allowance. Applicant therefore respectfully requests that the outstanding rejections be withdrawn and that the case be passed to issuance.

Respectfully submitted,

July 1, 2005

Date

David M. O'Neill (Reg. No. 35,304)

David M. O'Neill (Reg. No. 35,304)
Customer No.: 29683
HARRINGTON & SMITH, LLP
4 Research Drive
Shelton, CT 06484-6212
Telephone: (203)925-9400
Facsimile: (203)944-0245
email: DOneill@hspatent.com

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